



Billing Code: 3510-JE-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Consideration of Potential Age-Limiting Observations to be Used to Compute

2020.00 Reference Epoch Coordinates in the National Spatial Reference System

AGENCY: The Office of the National Geodetic Survey (NGS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Request for information.

SUMMARY: The National Geodetic Survey (NGS) is considering imposing age limits on the observations that will be used in the creation of 2020.00 Reference Epoch Coordinates (RECs), as part of the modernization of the National Spatial Reference System (NSRS). Due to expected uncertainties in the vertical component of the Intra-Frame Velocity Model (IFVM), the age limits cannot be determined until well-structured, data-driven experiments have been conducted. Such experiments are expected to occur during the 2020 reference epoch adjustment projects (geometric, orthometric and gravimetric), which are scheduled for calendar year 2022. Therefore, NGS requests that users take new Global Navigation Satellite System (GNSS) observations on geodetic control marks of interest, especially those marks that have not been surveyed since January 1, 2010, and share them with NGS before December 31, 2021.

DATES: The effective date of this announcement is upon publication of this notice. Submission of GNSS observations on geodetic control marks of interest are requested before December 31, 2021.

ADDRESSES: National Geodetic Survey, 1315 East-West Highway, Silver Spring, MD, 20910.

FOR FURTHER INFORMATION CONTACT: Dr. Dru Smith, NSRS Modernization Manager, by e-mail at *dru.smith@noaa.gov*, by phone at (240) 533-9654, or by mail at NOAA/NOS/NGS 1315 East-West Highway, Silver Spring, MD, 20910.

SUPPLEMENTARY INFORMATION: In 2017, the National Geodetic Survey (NGS) announced its plans to estimate RECs on a five-year cycle in NOAA Technical Report NOS NGS 67, 2019, starting with the first reference epoch at 2020.00, as part of the modernization of the NSRS. In the Technical Report, the exact observations to be used for this estimation were listed as “To Be Determined.” Now, NGS is considering imposing age limits upon the observations that will be used, particularly because of expected uncertainties in the vertical component of the IFVM. These age limits cannot be determined until additional well-structured, data-driven experiments are conducted. Such experiments are expected to occur during the 2020 reference epoch adjustment projects (geometric, orthometric, and gravimetric), which are scheduled for calendar year 2022.

However, since the cut-off for new observations to enter those adjustment projects is December 31, 2021, any decision to age-limit input observations will come too late for submissions to impact the 2020 RECs. While the cut-off for age-limited observations is unknown, certain assumptions are safe to make. For instance, it is unlikely that such an age-limit will be fewer than 10 years. Older observations may be used in the estimation of 2020 RECs, but this cannot be guaranteed. As such, NGS requests that users take new GNSS observations on geodetic control marks of interest that have not been surveyed

since January 1, 2010, and asks the users to submit the observations to NGS before December 31, 2021. Users may either (a) submit existing unsubmitted observations through the OPUS-Share tool or (b) conduct new GNSS observations and submit the data to NGS via the OPUS-Share tool.

In order to increase the submission of GNSS observations on marks, NGS is prioritizing the finalization of an expanded OPUS-Projects tool, which will allow real-time kinematic and real time network (RTK/RTN) observations to be submitted, rather than the standard four-hour observations required in OPUS-Share. Initial roll-out of this new tool is expected to occur during calendar year 2020.

This action is designed to increase both the number and the coordinate accuracy of geodetic control points, which in the modernized NSRS will have an estimated 2020.00 REC. Historically, NGS has combined data across multiple decades to estimate geodetic coordinates, yet such efforts have not fully accounted for the lack of information about vertical motion of geodetic control points throughout the years. Since height information is critical to the understanding of floods, failure to compute heights accurately can have negative impacts on property and lives. NGS views periodic re-surveys of geodetic control points, rather than the estimation of coordinates from observations that are years (or even decades) old, as the most effective way to maintain accurate and up-to-date knowledge of geodetic coordinates, including heights. As such, this announcement provides users of the NSRS with advance notice that geodetic control points of interest to them should be re-surveyed for the most accurate representation of geodetic coordinates, including heights.

(Authority: Coast and Geodetic Survey Act of 1947, 33 U.S.C. 883a *et seq.*)

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[FR Doc. 2020-16084 Filed: 7/23/2020 8:45 am; Publication Date: 7/24/2020]